

UTILITIES APPENDIX

I. INTRODUCTION

This appendix is an inventory of current facilities and conditions and future needs of the various public utilities that serve Kitsap County, but are not managed directly by the Kitsap County government. The utilities discussed include natural gas, electricity, telecommunications and the larger private water purveyors (which number more than 100 connections). Service areas, facility locations, existing capacity, and planned improvements are discussed. Water and sewer districts managed by municipalities (e.g., Silverdale Water District) are discussed in the Capital Facilities Element of this plan.

II. NATURAL GAS

Background

The Pacific Northwest receives its natural gas from the southwest United States and Canada. Natural gas is supplied to the entire region via two interstate pipeline systems. The Pacific Gas Transmission Company and Northwest Pipeline Corporation each own and operate their respective regional pipeline networks, which supply natural gas to Washington, Oregon, and Idaho.

Cascade Natural Gas Corporation (CNG), builds, operates, and maintains natural gas facilities serving Kitsap County. CNG is an investor-owned utility serving customers in sixteen counties in the State of Washington.

Natural gas is either stored as a gas under pressure, or cooled to -258 degrees F and stored as a liquid. Underground gas storage is provided at Jackson Prairie Gas Storage located south of Chehalis. Cold liquid storage is provided at a facility in Plymouth, Washington.

Existing Locations and Capacity

CNG's service area includes all of the City of Bremerton and adjacent unincorporated areas; the City of Port Orchard; the majority of South Kitsap, Silverdale, and Central Kitsap; and the City of Poulsbo. **Figure A-UT-1** shows CNG's current service area. Note that service is not currently provided to all areas inside the service area. Connections are initiated by customer demand and individual requests.

CNG has more than 17,000 residential, commercial, and industrial users as of January 1994. According to CNG, the current peak demand is approximately 1,950,000 therms per day.

Projected Locations and Capacity

CNG does not plan in advance for individual connections, rather connections are initiated by customer requests for new construction or conversion from electricity or oil. CNG expects to continue developing distribution systems and services to meet growth at lowest possible cost by maximizing capacity of the existing distribution system. This can be accomplished by one or more of the following:

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- # Increasing distribution and supply pressures in existing lines.
- # Adding district regulators from supply mains to provide additional intermediate pressure.
- # Adding new distribution and supply mains for reinforcement.
- # Replacing existing mains with larger sized lines.

CNG will pursue the aforementioned improvements throughout the existing service area. They have identified the following other specific improvements:

- # Adding 10-inch line in the Bremerton.
- # Adding eight miles of new line in Poulsbo.
- # Expanding services in Manchester.

Factors important in implementing expansion of the CNG system include right-of-way permitting, environmental impact assessments, coordination with other projects (e.g., road construction), and locations of other utilities.

III. ELECTRICAL

Background

Puget Sound Energy (formally Puget Sound Power & Light Company and Washington Natural Gas) is an investor-owned private utility responsible for providing electricity and gas service to more than 1,377,388 metered customers within the company's 6,000 square mile service territory, including Kitsap County. Puget Sound Energy is guided by many considerations, including protection of the performance, integrity, reliability and stability of the company's electrical system; the health, safety and service of its customers and employees; protection and preservation of the environment; and the affordability of electricity.

Once generated, electricity must be moved instantly to where it is needed. Utilities build networks of high-voltage (500 KV) transmission lines and substations to distribute this "bulk power" closer to the demand. The transmission substations transform the power, or "step-down" the power, to a lower voltage (230 KV, 115 KV) and route the power to local service areas. The power is further stepped down (to 5 to 35 KV) at distribution substations located in residential neighborhoods or at an industrial site. Distribution lines, or feeders, route the power from the distribution substation to pole-mounted transformers, just outside a home or business. The pole-mounted transformer steps the power down again to 240 volts. A service lateral line, or "service drop," then carries low-voltage power to the meter, fuse box or breaker panel in the home.

Existing Facilities

Power is supplied to Western Washington primarily from hydrogenerating stations along the mid-Columbia River and from Canada. Inter-regional 500 and 230 KV transmission lines carry power from the generating stations westerly to PSE's transmission switching stations and to transmission substations, operated by the Bonneville Power Administration (BPA) in the Puget Sound region. The

two main access points for receiving power in Kitsap County are at BPA Kitsap 230/115 KV Transmission switching station (north of Gorst) and Command Point cable station 115 KV Line (Fragaria). **Figure A-UT-2** shows the existing major electrical system facilities.

The existing electrical facilities inventory in unincorporated Kitsap County consist of:

- # Transmission Switching Stations — Foss Corner and Valley Junction
- # Transmission Substation — South Bremerton, Bremerton
- # Distribution Substations — Port Gamble, Christensen's Corner, Miller Bay, Silverdale, Central Kitsap, Bucklin Hill, Tracyton, McWilliams, Chico, Sinclair Inlet, South Keyport, Fernwood, Manchester, Long Lake, Fragaria, East Port Orchard, Sheridan, Rocky Point, Poulsbo, Bremerton, Port Madison, Murden Cove, and Winslow.
- # Transmission Lines 115 KV — Foss Corner-Salisbury Point, Foss Corner-Murden Cove, Bainbridge Tap-Foss Corner, Valley Junction-Foss Corner, Bremerton-Foss Corner, South Bremerton-Bremerton, South Bremerton-Valley Junction, O'Brien-South Bremerton, South Bremerton-Fernwood Tap
- # Other Facilities — Command Point Cable Station, Salisbury Point Cable Station
- # Other utilities with facilities in Kitsap County — Bonneville Power Administration and United States Navy.

PSE has divided Kitsap County into two subareas -- north and south -- for purposes of electric facilities planning. The North Kitsap subarea is defined by the shoreline with Sinclair Inlet to Hood Canal as the northern border. The South Kitsap subarea is defined by the shorelines, the county-line to the south, and Sinclair Inlet as the northern border.

The North subarea receives 115 KV power from BPA Kitsap station, routed to Puget Power's South Bremerton, Bremerton, and Valley Junction (east of Silverdale) 115 KV switching stations. Three 115 KV transmission lines carry power north into west Bremerton and Silverdale areas. Two of these lines -- the BPA Kitsap-Valley Junction and the South Bremerton-Valley Junction lines-- terminate at the Valley Junction switching station. The third line -- Bremerton-Foss Corner Line and Valley Junction - Foss Corner line -- continues north to the Foss Corner switching substation (northeast of Poulsbo). Three radial lines tap off this system to serve the northern section of the county, including Bainbridge Island.

The South Kitsap subarea is divided into two sections. The City of Port Orchard and the southwestern half of the subarea receive power from the South Bremerton transmission station (originating from BPA Kitsap). The eastern half of the subarea receives power from Command Point station (originating from O'Brien station via the Vashon Submarine Cable).

Existing Capacity

The analysis of the existing system has indicated that the 230/115 KV transformers at the BPA Kitsap switching stations are approaching their capacity, as measured by their capability to meet the power utilization of the distribution substations in north and south Kitsap. The power utilization factor is a comparison of current peak system load in Kitsap County during the winter heating season, divided by the design capacity of the substations in

Kitsap County. The power utilization factor is at 70.5% in north Kitsap and 75% in south Kitsap. **Table A-UT-1** lists the capacity and the peak winter usage measured in mega volt amperes (MVA) at the distribution substations located throughout the county (including incorporated areas). Peak winter usage is shown for January 30, 1996, at 9 a.m., when the average temperature was 23 degrees F.

Since only two 230-115 KV, 280 MVA transformers at the BPA Kitsap Switching Station serve most of Kitsap County, the capacity of these transformers is a measure of their ability to serve the connected load. Using planning guidelines from PSE, the system is designed so one of these large transformers can be taken out-of-service without causing customer outage during normal winter conditions.

Projected Needs Capacity

Long-range plans are developed by PSE’s Planning Group . The plans are based on electrical growth projections anticipated for the years 2010/2020 and beyond. County population projections produced by the state Office of Financial Management (OFM) are used to determine new load growth for the next 20 years. For load growth beyond 20 years, Puget Sound Regional Council (PSRC) population and employment forecasts are used. Projected load is calculated as the existing load, minus conservation reductions, minus demand side management, plus the forecast of new load. **Table A-UT-2** shows the projected estimated loads in 2020.

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Table A-UT-1. Electric Power Capacity and Usage		
Distribution Substations	Capacity (MVA)	Winter Load (MVA) (Jan. 30, 1996)
North Kitsap subarea		
Bremerton		
Bucklin Hill		
Central Kitsap		
Chico	50	22.1
Christensen's Corner	20	19.6
McWilliams	20	14.6
	20	20.0
Miller Bay	20	17.1
Murden Cove	20	14.3
Port Gamble	20	20.5
Port Madison	25	24.3
Poulsbo	20	16.7
Rocky Point No. 1	25	17.5
	20	22.7
Rocky Point No. 2	20	15.2
Sheridan No. 1	20	14.5
Sheridan #2	20	18.4
Silverdale	20	14.2
	20	20.2
South Keyport	20	18.7
Tracyton	20	18.3
U.S. Navy Keyport	20	10.0
Winslow	20	19.4
Total Loads Utilization Factor = 80.5 percent	445	358.3
South Kitsap subarea		
East Port Orchard		
Fernwood	25	18.5
Fragaria	25	26.6
Long Lake	25	22.1
Manchester	25	18.4
Sinclair Inlet	25	20.7
	20	11.4
Total Loads Utilization Factor = 81.2 percent	145	117.7

Table A-UT-2. Projected Estimated Electrical Load in 2020	
North Kitsap Subarea Existing Load	358.3 MVA
<u>Plus Total Expected Load</u> 2020 Projected Load Level (MVA)	*135 493.3
South Kitsap Subarea Existing Load	117.7
<u>Plus Total Expected Load</u> 2020 Projected Load Level (MVA)	45.2 162.9
	*Adjusted for Conservation and Demand Side Management Effects

System Improvements to Meet Projected Demand

Puget Sound Energy’s 2020 electrical facilities plan is based on an estimated peak winter load of 493.3 MVA for North Kitsap and 162.9 MVA for South Kitsap. PSE plans to construct additional transmission and distribution facilities to meet this demand. The construction projects planned by the year 2020 are described below and shown in **Figure A-UT_3**. The exact timing of individual projects will be determined by the rate of load growth in specific areas.

1. Bainbridge Transmission Reliability Improvement

This project will connect the substations so that power can automatically be restored following most transmission-related outages. Presently, each substation (and all the customers to which it provides electricity) is served by a separate 115 KV transmission line (a single source) from the north across Agate Pass.

If there is a failure anywhere along the transmission line, everyone served by that substation loses power until repairs can be made. By connecting (or "looping") the Murden Cove and Winslow substations, a second supply source will be available to each substation. This project will be proceeded by reliability improvement projects at Keyport and Port Madison Substations.

2. BPA Transmission Improvements

PSE and BPA are working towards adding a third 230-115 KV transformer in South Bremerton. This project will resolve the projected capacity shortage in the county.

3. Serwold Substation

This project provides for construction of a new distribution substation in northeast Poulsbo. This station will provide the necessary capacity to serve the new customer load and provide back-up power for adjacent substations.

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4. Bangor and Foss Corner Right-of-Way Acquisition

Puget Sound Energy is exploring alternatives to improve the capacity and reliability of the electric system serving Kitsap County. One such alternative is to construct a new transmission line between Bangor and Foss Corner switching stations. PSE is pursuing negotiations with the U.S. Navy Submarine Base Bangor and BPA to implement this alternative. If those negotiations are successful, PSE will begin the permitting process to acquire the rights-of-way for the transmission line rather than construct the submarine cable. This project would also involve acquiring right-of-way segments between the South Bremerton switching station and Bangor.

5. Helena Substation

This project provides for construction of a new distribution substation which will provide additional capacity in the area southwest and southeast of Fernwood. This project will also improve reliability by providing load transfer capability with the adjacent substations in Fernwood, Long Lake and Fragaria.

6. Colby Substation

This project provides for construction of a new distribution substation in northeast Port Orchard. This substation will provide a link between the Manchester and East Port Orchard substations and improve reliability as a result.

7. Foss Corner Salisbury #2 115/230 KV Line

This project will provide service to a future Sunset substation, which would serve future development in that area. This project will also provide for a future 230 KV transmission system link between Salisbury cable station and Foss Corner switching station.

8. South Bremerton-Foss Corner 230 KV Line

This project will provide for the construction of a 230 KV transmission line between South Bremerton and the Foss Corner Switching Station. The major portion of this line will be constructed on a right-of-way parallel to the Kitsap-Bangor BPA line. This 230 KV transmission line will ultimately link the South Bremerton switching station to the BPA Fairmount transmission substation (Jefferson County) via the Foss Corner switching station.

9. North Kitsap 230 KV Plan

This project will extend 230 KV lines northward throughout the Kitsap region.

10. Sedgwick Switching Station

This project will provide additional reliability for the distribution substations that are served from the O'Brien-South Bremerton.

11. Sedgwick-South Bremerton #3 115/230 Transmission Line

This project will serve the Sunnyslope Substation.

12. Distribution Substations

Several new distribution substations are planned to serve the forecasted load. In North Kitsap, distribution substations are proposed in Serwold, Tower, Sunset, Eglon, Newberry, Werner, Brownsville and Fletcher. In South Kitsap, distribution substations are proposed in Helena, Colby, Phillips, and Sunnyslope. These substations are shown in **Figure A-UT-3**.

A 20 MVA transformer is anticipated at each of the North Kitsap subarea substations, except at Fletcher where a 25 MVA transformer would be installed. This would provide an additional approximately 165 MVA capacity to the North Kitsap subarea. A 25 MVA transformer is anticipated at each of the South Kitsap subarea proposed substations, providing approximately 100 MVA of additional capacity to this subarea. Based on this added capacity and the predicted year 2020 load levels, the new utilization factors for residential and commercial use would be as shown in **Table A-UT-3**.

Table A-UT-3. Estimated Electrical Capacity Utilization Factors in 2020	
North Kitsap	= 493.3 MVA / 610 MVA
Total 2020 load / nameplate rating	= 80.8% utilization factor
South Kitsap	= 162.9 MVA / 245 MVA
Total 2020 load / nameplate rating	= 66.5% utilization factor

IV. TELECOMMUNICATIONS

Telecommunications is the transmission of information by wire, radio, optical cable, electromagnetic, or other similar means. The telecommunications utilities discussed in this section include telephone, radio communication, cellular telephone and cable television. Telecommunications is often referred to as the medium for the “information superhighway.”

Telecommunication service is regulated by the WUTC, and is subject to various federal laws and regulations administered by the FCC. Telecommunication providers must also comply with local regulations such as land use and public rights-of-way.

Telephone Service

Kitsap County is served by US West Communications, United Telephone Northwest, and PTI. Telephone service is initiated by customer demand and requests. Telephone service providers are required to provide adequate telecommunications service on demand (RCW 80.36.090). Accordingly, telephone service providers will provide facilities to accommodate whatever growth patterns occur. Since telephone service providers do not generally conduct detailed long range planning activities, no specific projects have been identified by any of the carriers. General improvements to expand service to meet the projected future demand include constructing additional fiber optic cable, copper cable, and switching stations.

US West

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US West has the largest service area in Kitsap County, encompassing a majority of South Kitsap, Silverdale and the City of Port Orchard. The US West service area extends northward through the City of Bremerton east to Port Orchard Bay, west to Hood Canal. The northern boundary of the US West service area is approximately in the middle of Ridgetop Boulevard.

US West has approximately 77,000 access lines in Kitsap County. The projected growth rate for the next three years is approximately 4% per year. US West does not forecast beyond three years because of the volatility in the telecommunications market. US West initiates planning activities to provide additional capacity when usage exceeds 85% of the total available capacity. US West regularly evaluates the capacity of their facilities and seeks to maintain operation of the system at 85% of total capacity.

United Telephone Company

The United Telephone service area begins at the northern boundary of the US West service area and extends east-west from near the shoreline of Hood Canal to Liberty Bay. United Telephone provides service to the City of Poulsbo and the areas between Poulsbo and Indianola and Port Gamble.

United Telephone Company currently provides approximately 20,000 phone lines in its service area. United Telephone is planning for an average growth rate in service lines of approximately 5% per year, and a total of approximately 25,000 access lines are expected by the year 1999. United Telephone Company plans to maintain the system operating at approximately 90% capacity while meeting the requested demand.

PTI

PTI serves the balance of the county not served by US West or United Telephone Northwest. PTI's service area includes Indianola, Kingston, Port Gamble, Hansville, and the Suquamish and Port Gamble S'Klallam Tribes. The PTI service area includes a region north of Fragaria, west to near Long Lake, and south to the county line.

PTI currently provides approximately 5,200 access lines in the Kingston-Hansville area and approximately 2,000 lines in the southern portion of the county. PTI maintains their operating system at approximately 80% capacity. No specific projections for future service have been provided by PTI.

Radio Communications

Radio communication forms an integral part of an established communications system within Kitsap County. Public sector communications provides services for law enforcement agencies, municipalities, interagencies, fire departments, search and rescue organizations, the American Red Cross, departments of emergency management, Puget Power, medical administration, and maritime.

Alternative emergency communications exist which are designed to supplement or replace existing public safety communications systems during times of emergencies or disasters. Emergency communications may include the use of local radio stations and HAM operators who provide a link to federal and state emergency management personnel during emergencies or disasters. Links are established throughout the county. Kitsap County recognizes the value of these facilities as part of an emergency broadcast network which has been in place for many years.

Cellular

Kitsap County is served by several cellular providers. The FCC regulates the cellular industry.

Cellular calls are routed by a series of low-powered transmitting antennas through a central computer called the mobile telephone switching office, or MTSO, which connects the call to its destination. The transmitting antennas are located at “cell sites” and coverage areas are known as “cells.” Strategic placement of the antennas allows a mobile cellular signal to be relayed as the carrier of the phone travels.

Additional antennas are planned when capacity overload is expected. The cellular system will expand in response to several factors: customer growth within a designated area, shift in distribution patterns, and/or a decrease in service quality or reliability (measured by the record of dropped calls or complaints of poor sound quality). In general, cellular system growth follows trends in population density along the higher volume transportation corridors.

Cable Television

Kitsap County is served by four cable television providers: TCI, Falcon, Northstar and Northland. Both TCI and Falcon Cable have franchised with Kitsap County to serve the entire county. Northstar Cable serves the Kingston and Hansville area. Northland serves Suquamish, Indianola, Bainbridge Island, and the greater north Poulsbo area.

A central collection point, a “headend,” receives signals by satellite, microwave or broadcast antennas and converts them to VHF frequencies that correspond to those in the tuner of a television set. The signals are conveyed to customers through miles of cable installed throughout the community. When a cable system carries more than 12 channels, a non “cable-ready” television cannot tune into the frequencies for channels higher than 13. The cable company then provides the customer with a converter to receive all of the frequencies and convert them back to a signal the television can accept. Converters also can descramble signals for optional premium services such as HBO.

Cable television companies are regulated under the Cable Television Consumer Protection and Competition Act of 1992 enforced by the FCC. Cable companies must enter franchise agreements with local governments to regulate service rates according to FCC guidelines. Kitsap County’s master ordinance specifies that cable coverage shall be available to all residents within county where there are at least 32 dwelling units per street mile. This ordinance also states that the franchisee with the nearest service facility and/or distribution line will be responsible to furnish cable service in areas which are adjacent to an unbuilt area.

TCI Cable

TCI’s service area includes the entire county and has the potential to serve 15,156 households. TCI plans for an approximate 4% annual growth rate. The franchise agreement with Kitsap County states that TCI will upgrade the system to 54 channels, as well as additional improvements to the existing system such as laying new optical fiber for increased capabilities.

Falcon Cable

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Falcon Cable service area includes the entire county and serves 17,700 subscriber households. Falcon Cable services are currently meeting demand. Falcon Cable has been providing cable service for less than two years and currently does not have a specific growth plan. Falcon Cable is currently negotiating with Kitsap County to renew their franchise agreement. Planning for system improvements will be identified in the final agreement.

North Star

North Star Cable serves the communities of Kingston and Hansville, with 950 and 300 subscribers respectively. North Star has experienced an average of 4% to 5% annual growth rate. North Star intends to meet demand but does not have a specific plan for expanding services.

Northland Cable

Northland provides cable television service to Suquamish, Indianola, parts of Bainbridge Island, and the greater north Poulsbo area. Currently, Northland has 980 subscribers in unincorporated Kitsap County. Northland has experienced an annual growth rate of approximately 6%. Northland Cable intends to meet their anticipated growth but does not have a specific plan for expanding services.

